



#5 Receipt  
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: K. Yano et al.

Atty. Dkt. No. 103176-00001

Serial No.: 09/926,709

Examiner: Not Assigned

Filed: December 5, 2001

Art Unit: 1731

For: ASSISTANT FOR DIGESTING LIGNOCELLULOSE MATERIAL AND METHOD  
FOR PRODUCING PULP

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
Washington, D.C. 20231

Date: March 1, 2002

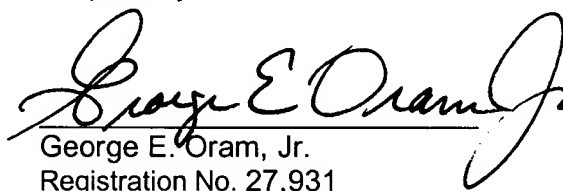
Sir:

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the information items listed on the attached PTO-1449. Unless otherwise indicated herein, one copy of each item is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the items be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date, OR (b) before the mailing date of a first Office Action on the merits in the present application, OR (c) accompanies a Request for Continued Examination. No certification or fee is required.
- ☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance.
- ☐ a. I hereby certify that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(1).
- ☐ b. I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(2).
- ☐ c. A check in the amount of \$180.00 in payment of the fee under 37 CFR §1.17(p). Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300 as needed to ensure consideration of the disclosed information.

- ☐ 3. This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Applicant(s) hereby petition(s) that the Information Disclosure Statement be considered. Attached is our check in the amount of \$180.00 in payment of the petition fee under 37 CFR §1.17(i)(1). Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300 as needed to ensure consideration of the disclosed information.
- ☐ a. I hereby certify that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(1).
- ☐ b. I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(2).
- ☒ 4. The relevance of certain of the non-English language references is discussed in the present specification. A further explanation of the relevance of each of the non-English language references appears in the "Brief Explanation" attached hereto.

Respectfully submitted,

  
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Registration No. 27,931

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FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

103176-00001

SERIAL NO.

09/926,709

## LIST OF REFERENCES CITED BY APPLICANT

*(Use several sheets if necessary)*

APPLICANT

K. Yano et al.

FILING DATE

December 5, 2001

GROUP

1731

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA	4,112,231	9/5/78	Weibull et al.	544	174	
	AB	6,248,209 B1	6/19/01	Maeda et al.	162	65	
	AC						
	AD						
	AE						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION		
							YES	NO	PART.
	AG	0 021 263 A. 1	1/7/81	European				X	
	AH	1,142,714	3/15/83	Canada					
	AI	54-100332	8/8/79	Japan				X	
	AJ	2,214,299	2/28/99	Canada					
	AK	39 05311 A1	8/23/90	Germany				X	
	AL	0 864 689 A2	9/16/98	Europe			X		

OTHER REFERENCES *(Including Author, Title, Date, Pertinent Pages, Etc.)*

	AM	
	AN	
	AO	

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Sheet 1 of 2

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA	5,871,614	2/16/99	Turner	162	72	
	AB	5,871,663	2/16/99	Turner	252	175	
	AC	5,298,120	3/29/94	Blackstone	162	76	
	AD	5,032,224	7/16/91	Ahluwalia	162	75	
	AE	4,481,073	11/6/84	Sakai et al.	162	30.1	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION		
							YES	NO	PART.
	AG	53-74101	7/1/78	Japan				X	
	AH	1,106,557	8/11/81	Canada					
	AI	1-20276	7/13/82	Japan				X	
	AJ	53-28522	10/4/77	Japan				X	
	AK	1-164437	6/28/89	Japan				X	
	AL	2-71841	3/12/90	Japan				X	

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

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	AN	
	AO	

EXAMINER

DATE CONSIDERED

\*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

## Brief Explanation

1. (11) 53-74101 (19) JP (43) Jul. 01, 1978

(21) 51-148492 (22) Dec. 12, 1976

(54) PROCESS FOR PRODUCTION OF PULP

(71) Honshu Seishi Kabushiki Kaisha

(72) Nakamura Masato, Nomura Yoshika, Uchimoto Iwahiro

(The above-identified application described in the Specification is the equivalent of the following application.)

2. (11) 1,106,557 (19) CA (45) Aug. 11, 1981

(21) 292,069 (22) Nov. 30, 1977

(54) PROCESS FOR PRODUCTION OF PULP

(71) Honshu Seishi Kabushiki Kaisha

(72) Nakamura Masato, Nomura Yoshika, Uchimoto Iwahiro

3. (11) 01-20276 (19) JP (24)(44) Apr. 14, 1989

(21) 55-178700 (22) Dec. 19, 1980

(54) METHOD FOR PRODUCING A PULP

(71) Honshu Seishi Kabushiki Kaisha

(72) Nomura Yoshika, Tokiya Yaguchi

(The above-identified application described in the Specification is the equivalent of JP, 57-112485 described in "Documents considered to be relevant" of the International Search Report.)

A method for producing a pulp including a process of alkali digestion or sulfite digestion of a lignocellulose material, where the digestion is carried out by adding a water-soluble dihydroxyanthracene compound at 0.005 to 3 % to the lignocellulose material and adding as

penetration promoters of the compound into the lignocellulose material (a) a polycyclic phenol adduct of polyethylene oxide or (b) a higher fatty acid-, alcohol-, alkyl phenol-, or polycyclic phenol adduct (nonionic series) of polyethylene oxide/polypropylene oxide copolymer, and the sulfate ester salt or phosphate ester salt (anionic series) of the penetration promoter (a) or (b) at 0.001 to 1 % to the lignocellulose material.

The method for producing a pulp is intended for the purpose of achieving the elevation of the yield of the effective digestion and the improvement of the pulp quality, using a chemically stable, nonionic- or anionic-series specific polyalkylene oxide polymer as a penetration promoter of a dihydroxyanthracene compound into wood chip in combination with the dihydroxyanthracene compound, in a chemical solution at a temperature during the alkali digestion or sulfite digestion, to rapidly penetrate the dihydroxyanthracene compound into the inside of the chip to prevent the distinct hemicellulose decomposition and solubilization occurring at the early stage of the digestion via the action of the dihydroxyanthracene compound to suppress the peeling reaction.

4 . (11) 53-28522 (19) JP (44) Aug. 15, 1978

(21) 51-35377 (22) Mar. 30, 1976

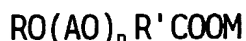
(54) DERESINATION AGENT FOR A PULP

(71) Sanyo Chemical Industries, Ltd.

(72) Kazuhiro Murai, Hiroshi Daigo

(The above-identified application described in the Specification is the equivalent of JP, 52-118003 described in "Documents considered to be relevant" of the International Search Report.)

A deresination agent for a pulp, the agent containing a compound represented by the general formula:



(wherein, RO is the residue of a monohydroxyl compound containing 8 or more carbon atoms; AO is an oxyalkylene group containing 2 to 4 carbon atoms; n is 1 to 30; R' is an alkylene group containing 1 to 6 carbon atoms; and M is a cation)

and being suitable for use at the digestion process of pulp production.

In case that the deresination agent is used at the alkali digestion process, the resin content in the pulp can be lowered, so that raw woods with difficulty in resin removal, such as South-sea wood, can be used at a far higher ratio, to say nothing of the reduction of resin damages with the resultant ready process control. Further, the deresination agent can promote the penetration of the digestion solution into raw wood, so that the digestion time can be shortened and the pulp yield can be improved, effectively, from the resource-saving respect.

5. (11) 01-164437 (19) JP (43) Jun. 28, 1989

(21) 63-242489 (22) Sep. 29, 1988

(54) ALKOXYLATION CATALYST

(71) Lion Corp.

(72) Hiroshi Nakamura, Yuichi Nakamoto, Yuji Fujimori

(The above-identified application is described in the Specification.)

PURPOSE: To obtain an alkoxylation catalyst capable of producing a product having narrow molar distribution of added alkylene oxide by

producing an alkoxylation catalyst contg. at least one kind of metal ion selected from  $Al^{3+}$ ,  $Ga^{3+}$ ,  $In^{3+}$ ,  $Tl^{3+}$ , etc. in MgO.

CONSTITUTION: An aq. soln. of nitrate or carbonate of at least one kind of metal ion selected from  $Al^{3+}$ ,  $Ga^{3+}$ ,  $In^{3+}$ ,  $Tl^{3+}$ ,  $Co^{3+}$ ,  $Sc^{3+}$ ,  $La^{3+}$ , and  $Mn^{2+}$  is prepd. After impregnating the aq. soln. of the metal salt into MgO having 99% purity, the impregnated product is calcined at 400-1000°C, pref. 500-800°C in  $N_2$  stream or in vacuum. Thus, an alkoxylation catalyst to be used for the reaction of an org. compd. having an active H with alkoxyene oxide is produced. The amt. of  $Al^{3+}$  to be carried on MgO in the obtd. catalyst is pref. 0.1-30wt%, more pref. 0.5-20wt% basing on the weight of the catalyst.

6. (11) 02-71841 (19) JP (43) Mar. 12, 1990

(21) 01-105705 (22) Apr. 25, 1989

(54) ETHOXYLATION OR PROPOXYLATION CATALYST

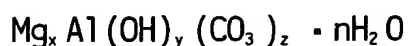
(71) Henkel Kgaa

(72) Ansgaas Beeraa, Endres Helmut, Friedrich Claus,  
Herrmann Klaus

(The above-identified application is described in the Specification.)

PURPOSE: To increase the ethoxylation or propoxylation activity of an activated hydrogen atom containing compd. by forming the ethoxylation or propoxylation catalyst by heating and burning a natural or synthetic hydrotalcite at a prescribed temp.

CONSTITUTION: The catalyst is formed by burning the natural and/or synthetic hydrotalcite expressed by formula



((x), (y), (z) and (n) are  $1 < x < 5$ ,  $y > z$ ,  $(y + 0.5z) = 2x + 3$ ,  $0 < n < 10$ , and (x)



is (1.8-3) preferably) over 100°C, appropriately 400-600°C, for several-hour. The obtained catalyst is useful as the ethoxylation or propoxylation catalyst of the activated hydrogen atom containing compd. Fatty acid, hydroxy fatty acid, fatty acid amide, alcohol, alkylphenol, etc., are exemplified as the activated hydrogen atom containing compd.

7. (11) 4,112,231 (19) US (45) Sep 5, 1978

(21) 719,646 (22) Sep. 1, 1976

(54) PROCESS FOR THE CONDENSATION OF EPOXIDES WITH ORGANIC  
COMPOUNDS HAVING AN ACTIVE HYDROGEN

(73) Bero1 Kemi AB

(75) Bengt John Gustaff Weibull, Leif Urban Folke Thorsell

(The above-identified application is described in the  
Specification.)

8. (11) 0021263 (19) EP (43) Jan. 7, 1981

(21) 80103277.2 (22) Jun. 12, 1980

(54) PROCESS FOR THE PREPARATION AGENT WHICH CONTAINS ORGANIC,  
CYCLIC COMPOUNDS WITH KETO AND/OR HYDRO GROUPS AND  
SURFACEACTIVE AGENTS, AND PROCESSES FOR THE PRODUCTION  
OF PULP USING THIS AGENT

(71) Bayer AG

(72) Neumaier Hermann, Advena Hans-Jurgen

(The above-identified application, which is described in "  
Documents considered to be relevant" of the International Search  
Report, is the equivalent of the following application.)

9. (11) 1142714 (19) CA (43) Mar. 15, 1983  
(21) 354,578 (22) Jun. 23, 1980  
(54) PROCESS FOR THE PREPARATION AGENT WHICH CONTAINS ORGANIC,  
CYCLIC COMPOUNDS WITH KETO AND/OR HYDRO GROUPS AND  
SURFACEACTIVE AGENTS, AND PROCESSES FOR THE PRODUCTION  
OF PULP USING THIS AGENT  
(72) Neumaier Hermann, Advena Hans-Jurgen  
(73) Bayer Aktiengesellschaft

10. (11) 54-100332 (19) JP (43) Aug. 8, 1979  
(21) 53-4230 (22) Jan. 20, 1978  
(54) QUINONE COMPOUNDS COMPOSITION AND ITS PREPARATION  
(71) Nippon Steel Chem Co Ltd  
(72) Osamu Yamashita, Koji Kitaichi, Hidemi Arioka,  
Hidehiko Koishi

(The above-identified application is described in "Documents considered to be relevant" of the International Search Report.)

PURPOSE: To obtain the title stable water-dispersible composition usable for pulp yield improvers to be added in the process of manufacturing pulp from lignocellulose, by kneading or pulverizing a water-insoluble quinone compound powder with an ionic surfactant.

CONSTITUTION: One part by wt. of water-insoluble quinone compound powder (Q), e.g. anthraquinone or 1,4-dihydroanthraquinone, having a particle size 100  $\mu$  is homogeneously kneaded with 0.02-1 part by wt. of an ionic surfactant (S), e.g. semihardened beef tallow sodium, and, if necessary, a small amount, e.g. 0-5 part by wt. of water to give a stable water-dispersible quinone composition. Alternatively, the powder (Q) is wet pulverized in the surfactant (S) solution.

11. (21) 2,214,299 (19) CA (22) Aug. 29, 1997

(43) Feb. 28, 1999

(54) COMPOSITION AND METHOD FOR PRODUCING WOOD PULP

(71) Chemstone, Inc.

(72) Nuckolls, Hugh E.

(The above-identified application is described in "Documents considered to be relevant" of the International Search Report.)

12. (11) 3905311 A1 (19) DE (43) Aug. 23, 1990

(21) P3905311.3 (22) Feb. 21, 1989

(54) ANTHRAQUINONE/SURFACTANT MIXTURES, PRODUCTION AND USE  
THEREOF

(71) Bayer AG

(72) Blank Heinz Ulrich, Schnegg Peter, Wohlrab Klaus,  
Petroll Hans-Werner

(The above-identified application is described in "Documents considered to be relevant" of the International Search Report.)

The invention relates to easily preparable, non-dust-forming, free-flowing and uniformly dispersible in aqueous medium anthraquinone/surfactant mixtures which contain 0.05 to 5% by weight, based on the weight of the anthraquinone, of liquid nonionic surfactants, the preparation of the mixtures and their use in wood digestion processes for cellulose production.

13. (10) 6,248,209 B1 (19) US (45) Jun. 19, 2001

(21) 08/945,313 (22) Aug. 6, 1996

(54) PROCESS FOR BLEACHING CELLULOSE PULP WITH A BLEACHING

ASSISTANT HAVING THE FORMULA  $R^1-O- \{[(C_2H_4O)_M/(AO)_N]\} -H$

(73) Sanyo Chemical Industries, Ltd.

(75) Hiroaki Maeda, Daisuke Nakamura, Nobuo Hisada

14. (11) 0864689 A2 (19) EP (43) Sep. 16, 1998

(21) 98400568.6 (22) Mar. 11, 1998

(54) ADDITIVE COMPOSITION AND PROCESS FOR REDUCING ANTHRAQUINONE  
REQUIREMENTS IN PULPING OF LIGNOCELLULOSIC MATERIAL

(71) Westvaco Corporation

(72) Turner, William T.

15. (11) 5,871,614 (19) US (45) Feb. 16, 1999

(21) 814,375 (22) Mar. 11, 1997

(54) PROCESS FOR REDUCING ANTHRAQUINONE REQUIREMENTS IN PULPING  
OF LIGNOCELLULOSIC MATERIAL

(73) Westvaco Corporation

(75) William T. Turner

(The above-identified application is the basis of the Convention  
priority claimed on EP, 0864689 described above.)

16. (11) 5,871,663 (19) US (45) Feb. 16, 1999

(21) 814,680 (22) Mar. 11, 1997

(54) ADDITIVE COMPOSITION FOR REDUCING ANTHRAQUINONE  
REQUIREMENTS IN PULPING OF LIGNOCELLULOSIC MATERIAL

(73) Westvaco Corporation

(75) William T. Turner

(The above-identified application is the basis of the Convention  
priority claimed on EP, 0864689 described above.)

17. (11) 5,298,120 (19) US (45) Mar. 29, 1994  
(21) 896,060 (22) Jun. 9, 1992  
(54) COMPOSITION FOR ENHANCING THE PULPING OF WOOD CHIPS  
(76) Michael Blackstone

(The above-identified application is described in "Documents considered to be relevant" of the European Search Report on EP, 0864689 described above.)

18. (11) 5,032,224 (19) US (45) Jul. 16, 1991  
(21) 328,678 (22) Mar. 27, 1989  
(73) Exxon Chemical Patent Inc.  
(75) Madhu R. Ahluwalia

(The above-identified application is described in "Documents considered to be relevant" of the European Search Report on EP, 0864689 described above.)

19. (11) 4,481,073 (19) US (45) Nov. 6, 1984  
(21) 323,131 (22) Nov. 19, 1981  
(73) Kawasaki Kasei Chemicals Ltd.  
(75) Kazuaki Sakai, Tuneyasu Sato, Kazuhiko Chiba

(The above-identified application is described in "Documents considered to be relevant" of the European Search Report on EP, 0864689 described above.)